FIGHTER FLYING BOAT

Description in Detail of the Saunders-Roe A1 Twin-Jet Design : Internally-Mounted Metrovick Beryls

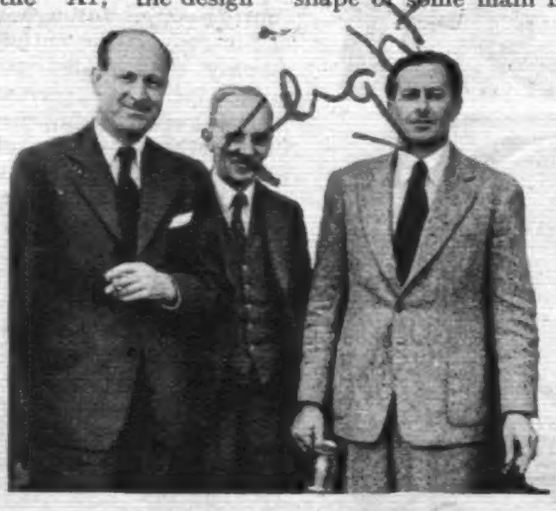
THERE is no doubt that the Saunders-Roe twin-jet single-seater fighter flying boat is one of the most interesting and unusual designs ever to take the air. On close inspection one becomes more and more intrigued as the various details of equipment and construction are revealed. In particular, however, the overall impression gained is one of uniqueness, so different in shape, layout and conception is the S.R/A1 from all other fighters or aircraft of any other class. One feels impelled to liken the aircraft to a submarine and to pursue the comparison through the various major units. The hull is a floating powerhouse from which protrudes a pair of jet pipes. If one descends through the hatch and stands at the rear end of the walkway the scene ahead past the Metrovick power units gives, as may be judged from the illustration, a decidedly more nautical than aeronautical impression. The captain, or pilot, controls his ship from a tiny isolated cockpit unit on the top side, which is sealed off from the hull. It would be uncomfortably hot and noisy to ride in the engine-room, but space would permit the carriage in flight of first and second engineers. Moreover, the engines would be accessible to them in flight.

The requirements of the specification and the particular qualities demanded of a water-based fighter may be well known. The principal advantages of the "A1," the design of which was laid down in anticipation of a prolonged campaign to dislodge the Japanese from their Far East positions, is its ability to operate in areas where practically no land bases or landing strips are available. In this connection also it must be borne in mind that a sheltered stretch of water, which is all that is needed, requires practically no camouflage and can hardly be bombed out of use. What is more, the range problem associated with jet fighters can be, to some extent, alleviated by moving up and selecting bases as near as possible to the scene of operations. An emergency landing, due to loss of fuel or position, would with a land-based machine almost certainly result in a write-off. This is not necessarily so with a boat.

The S.R/A1 still has important applications and a bearing on future developments. There is a tendency now to carry a crew of two for long and medium-range work over difficult country. The S.R/A1, or a slightly larger version, might well carry a navigator, be equipped with additional fuel tankage and perhaps more powerful turbojets. At present fuel is carried only in the wings, but there is plenty of space available for tanks in the hull. The possibility of cruising on one turbojet, having reached operational height, should also be borne in mind.

Three S.R/A1s, to specification E.6/44, have now been completed and the first is undergoing trials at Felixstowe. The second is flying from Cowes, and the third, which differs in certain details, is being prepared there for demonstration at Farnborough. The first two prototypes have Metrovick F.2/4 turbojets rated at 3,500 lb thrust, but the third has later Beryls rated at 3,850 lb thrust.

The airframe structure, except for the rather unusual shape of some main frames, in particular those of cloverleaf form around the jet pipe outlets, is quite conventional. Major units are mainly built up from angle extrusions and plate webs. The webs, or diaphragms as they are called locally, are, where necessary, stiffened with vertical angle sections or by flutes. Lighter frames and ribs may be either of similar construction with rolled angles, or one-piece pressings.



(Left to right) Saunders-Roe chief designer, Mr. H. Knowler, Metropolitan-Vickers chief gas turbine engineer, Dr. D. M. Smith and chief test pilot, Mr. Geoffrey Tyson.

The Hull

From bow to stern there are 34 frames and through the centre portion seven half-frames in addition. These are intersected by deep channel-section longerons, extend-